

IN THE CLAIMS

Please cancel claims 1-104, without prejudice to future prosecution.

Please add the following new claims:

--105. A recombinant or synthetic polynucleotide encoding a vertebrate telomerase reverse transcriptase, which has telomerase activity when associated with telomerase RNA component and contains at least one of the following motifs: FFYxTE, RKxxWxxL, RxIPK, FxxxDxxxxYD, GIPQGS, LLLRL, DDFL, or WxGxxxxxxxxL.

106. The polynucleotide of claim 105, wherein the telomerase reverse transcriptase contains the motif FFYxTE (SEQ ID NO:71).

107. The polynucleotide of claim 105, wherein the telomerase reverse transcriptase contains all of the motifs in claim 105.

108. A non-naturally occurring telomerase reverse transcriptase containing Motif T, Motif 1, Motif 2, Motif A, Motif B', Motif C, Motif D, and Motif E.

109. The telomerase reverse transcriptase of claim 106, comprising the Motif T, Motif 1, Motif 2, Motif A, Motif B', Motif C, Motif D, and Motif E contained in SEQ ID NO:117.

110. A polynucleotide encoding the telomerase reverse transcriptase of claim 108.

111. A method of increasing the proliferative capacity of a cell of a vertebrate species, comprising expressing a recombinant polynucleotide encoding a vertebrate telomerase reverse transcriptase (TRT) in the cell.

112. The method of claim 111, wherein the recombinant polynucleotide is a polynucleotide according to claim 105.

113. The method of claim 111, wherein the recombinant polynucleotide is a polynucleotide according to claim 108.

114. The method of claim 111, wherein the recombinant nucleic acid contains at least 10 consecutive nucleotides of SEQ. ID NO:117.

115. A method of treating a subject to increasing the proliferative capacity of a cell or tissue, comprising administering a recombinant polynucleotide encoding a vertebrate telomerase reverse transcriptase (TRT) in the cell.

116. The method of claim 115, wherein the recombinant polynucleotide is a polynucleotide according to claim 105.

117. The method of claim 115, wherein the recombinant polynucleotide is a polynucleotide according to claim 108.

118. The method of claim 115, wherein the recombinant nucleic acid contains at least 10 consecutive nucleotides of SEQ. ID NO:117.--